

REMARKS/ARGUMENTS

Reconsideration of the application is respectfully requested for the following reasons:

Rejection of Claims 1-15 Under 35 U.S.C. §112, first paragraph

Applicants have amended claims 1 and 8 in respond to this rejection. Reconsideration of claims 1 and 8 is respectfully requested. Claims 1-15 and 20-21 are objected because of typographical error. In respond to this objection, Applicants have amended claims 1-15 and 20-21. Reconsideration of claims 1-15 and 20-21 is respectfully requested.

Rejection of Claims 1-6, 9-12, 15-24 and 29 Under 35 U.S.C. § 102(b)

Claims 1-6, 9-12, 15-24 and 29 were rejected under 35 U.S.C. § 102(b) as being anticipated by Mayer (US 6,309,981 B1).

Applicants respectfully traverse this rejection. It is submitted that Mayer fails to teach every element of the claimed invention.

Mayer merely discloses a process that deposits a thin diffusion barrier layer 152 before depositing the metal, performing a conductive surface coating by depositing a copper seed layer on the barrier layer 153, electrofilling at 154 with a thicker layer of copper over the seed layer, removing copper in some unwanted areas by the edge bevel removal (EBR) and/or backside etch BSE processes, planarizing the electroplated copper by chemical-mechanical polishing (CMP) down to the dielectric at 156 in

preparation for further processing (illustrated at 157).

It is submitted that Mayer fails to disclose at least the step of planarizing the surface of said wafer to remove redundant metal structure, wherein an exposed part of said thin film at an edge of said wafer is exposed after planarizing and the step of removing said exposed part of said thin film at said edge of said wafer. The teaching of Mayer only mentions about the removal of copper in some unwanted areas by the edge bevel removal (EBR) and/or backside etch BSE processes and keep silent about the removal of exposed part of said thin film at an edge of said wafer. Moreover, Mayer does not expose a part of the thin film at an edge of the wafer. Thus it is quite clear that Mayer does not teach every element of the claimed invention.

According to MPEP §2131, To Anticipate A Claim, The Reference Must Teach Every Element Of The Claim. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. It is quite clearly that Mayer actually fails to teach every element of the claimed invention and one with ordinary skill in the art would not anticipate the claimed invention by the teaching of Mayer.

Therefore, Applicants submit that each and every element recited in claims 1 and 16 is neither disclosed nor suggested in the cited prior art, and therefore is allowable.

As claims 2-6, 9-12 and 15 depend from claim 1, and claims 17-24 and 29 depend from claim 16, Applicants submit that each of these claims incorporates the patentable aspects therein, and are therefore allowable for at least the reasons set forth above with respect to the independent claims, as well as for the additional subject matter recited therein.

Hence, Applicants respectfully request the rejection be withdrawn.

Rejection of Claims 7, 8, 13-14, 25, 26-27, 28 and 29 Under 35 U.S.C. §103(a)

Claims 7, 8, 13-14, 26-27 and 29 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Mayer et al. and further in view of Emami (US 6,857,941). In addition, claim 25 was rejected under 35 U.S.C. §103(a) as being unpatentable over Mayer et al. and further in view of Vines (US 6,048,789). Also, claim 28 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Mayer et al. and further in view of Kaufman (US 2004/009671A1).

Applicants respectfully traverse these rejections since neither Emami, Vines, nor Kaufman cures the deficiencies that exist in Mayer as discussed above.

According to MPEP §2143, Basic Requirements of a Prima Facie Case of Obviousness[R-1], To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Since the combination of Mayer and Emami, the combination of Mayer and Vines, and the combination of Mayer and Kaufman do not teach all the limitations of the claimed invention, the combination of Mayer and Emami, the combination of Mayer and Vines, and the combination of Mayer and Kaufman are insufficient to render the claimed invention unpatentable.

Furthermore, as claims 7, 8, 13-14, 25-25 and 29 depend from

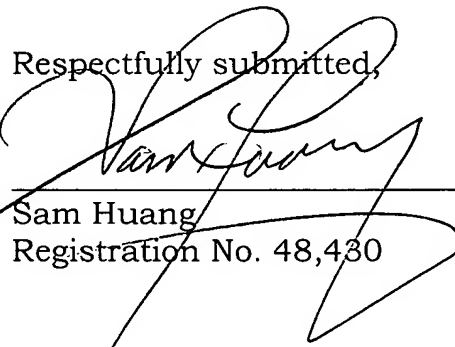
independent claims 1 and 16, respectively, Applicants submit that each of these claims incorporates the patentable aspects therein, and are therefore allowable for at least the reasons set forth above with respect to the independent claims, as well as for the additional subject matter recited therein.

Applicants respectfully request the rejections be withdrawn.

Conclusion

In light of the above remarks to the claims, Applicant contends that Claims 1-29 are patentable thereover. The claims are in condition for favorable consideration and Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,



Sam Huang
Registration No. 48,430

Customer No. 004372
ARENT FOX PLLC
1050 Connecticut Avenue, N.W.,
Suite 400
Washington, D.C. 20036-5339
Tel: (202) 857-6000
Fax: (202) 638-4810